Customer Care Solutions
TME-3 Series Transceivers

Tuning, Flashing and Final Testing Instructions

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RF Tuning Instructions

General

All tuning operations of the TME-3 are carried out using the Nokia Phoenix service software. interfaces with TME-3 via service adapter.

The tuning values of the phone are stored on the non-volatile memory of the TME-3.The contents of this memory can be read by the service software and saved as a file. The program also enables writing the default tuning parameters, in which case all tuning steps should be carried out.

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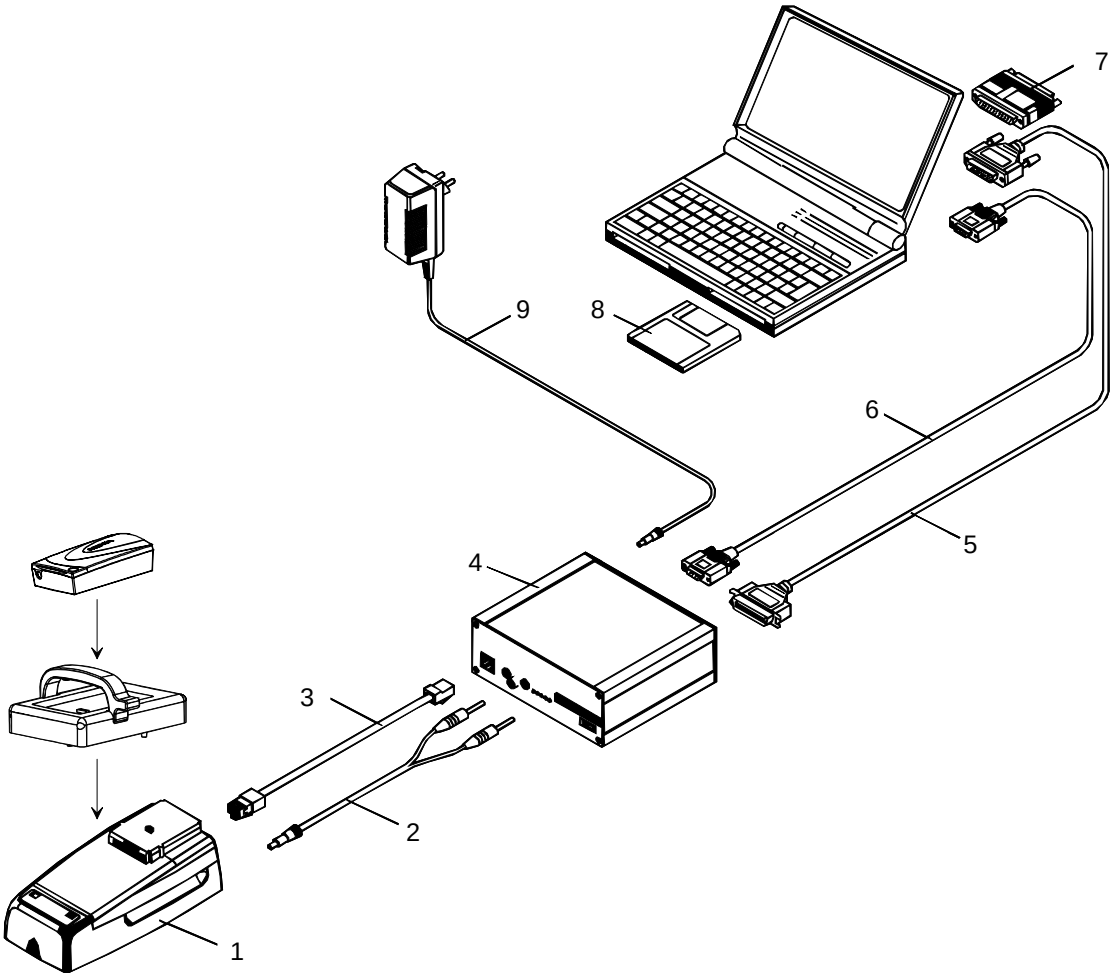
Flashing concept setup

Figure 1: Flashing concept



Item:	Service accessory:	Product type:	Product code:
1	Docking station	JBV–1	0770298
	Docking station adapter	MJF–21	0770374
2	Power cable	PCS-1	0730012
3	Modular cable	XCS–4	0730178
4	Flash prommer box	FPS–8	0750123
5	Printer cable, incl. in FPS–8 sales pack	Printer cable,	0730029
6	D9 – D9 cable, incl. in FPS–8 sales pack	AXS–4	0730090
7	Software protection key	PKD–1	0750018
8	Phoenix Service SW	CD–ROM	0775311
	TME-3 Flash SW data	CD–ROM	0775321
9.	Power supply	ACF-8	0680032

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JBV-1 Service Concept

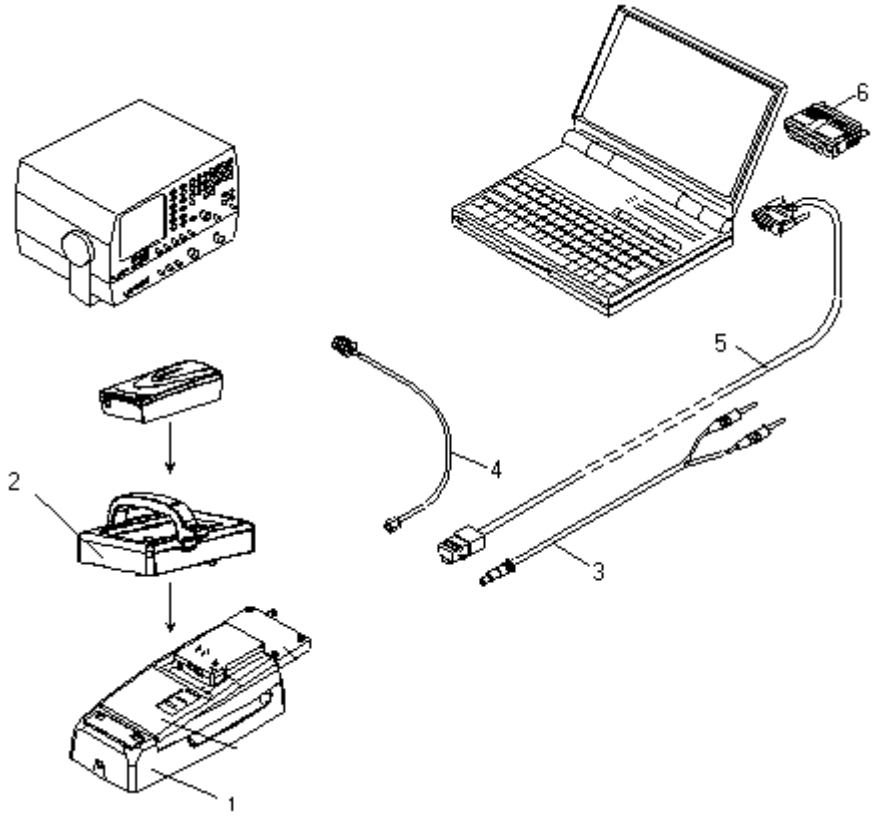

Figure 2: JBV-1 Service Concept

JBV-1 concept list

Item:	Service accessory:	Type:	Product code:
1.	Docking station	JBV–1	0770298
2.	Docking station adapter	MJF–21	0770374
3.	Power cable	PCS-1 (for external power supply)	0730012
4.	Service cable	XRC-5	0730276
5.	Cable	DAU-9S	0730108
6.	Software protection key	PKD–1	0750018
7.	CD–ROM	Phoenix Service SW	0774280
	CD–ROM	TME-3 Flash SW data	0775321

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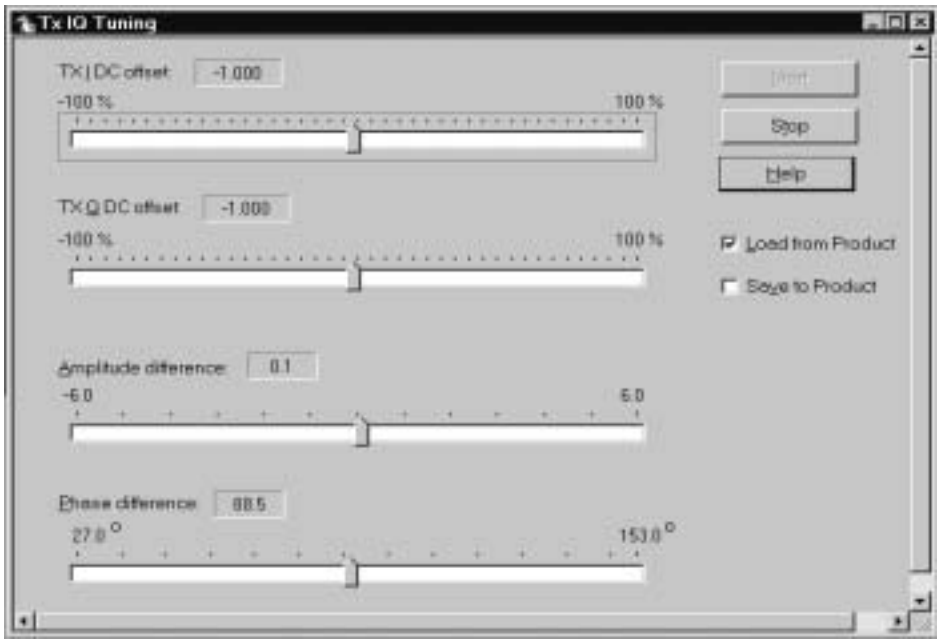
TX tuning, step1: TXIQ tuning

Measurement equipment: Spectrum analyzer

Tuning procedure is similar with earlier products.

Select Maintenance => Tuning =>TxIQTuning

Figure 3: TxIQ tuning window



- Select "Load from product" => Start
- Click to slide control to activate it
- Use <-, ->,PgUporPgDnkeys
- Tune LO leak to minimum with TXI/TXQ DC offset control
- Tune wrong sideband to minimum using Amplitude/Phase difference controls
- Select "Save to product" => Stop
- TxIQ tuning must be performed for each band separately

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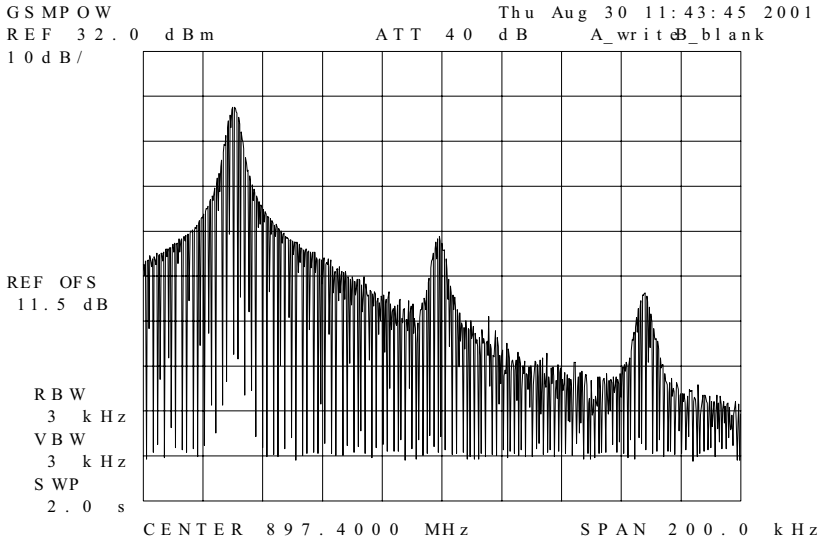
Typical values:

Figure 4: TxIQ tuning



DC offsets: -3...+1

Amplitude difference: -0.4...+0.4

Phase difference: 85º...95º

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TX tuning, step2: TXpower level tuning

Maintenance => Tuning =>Txpower level tuning

Start => Load from: Permanent memory => OK

Figure 5: TX power level tuning window, TxPA high mode

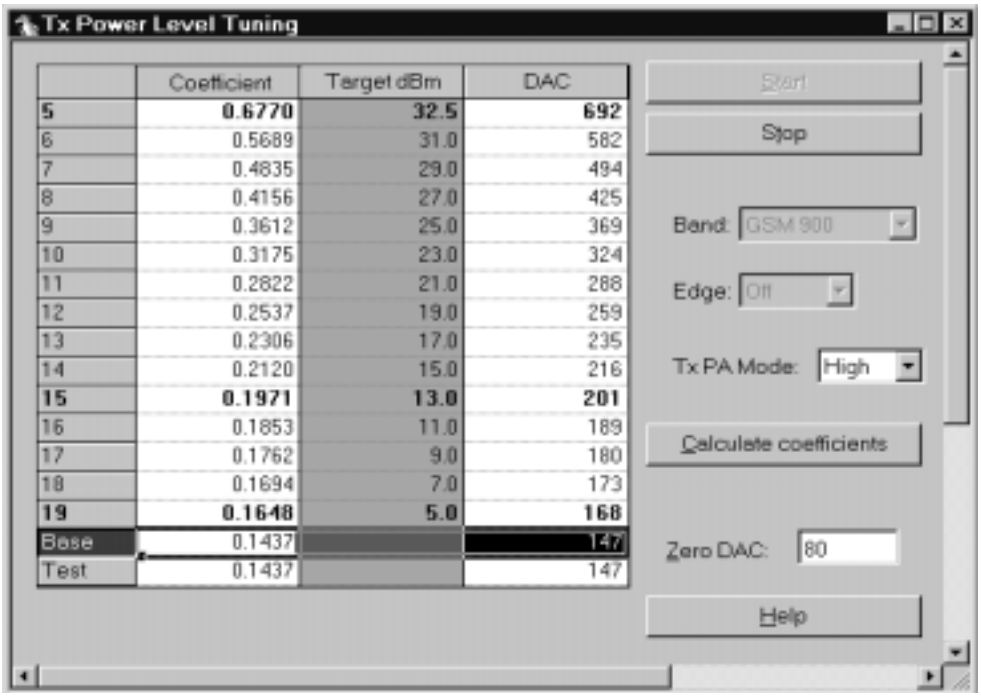
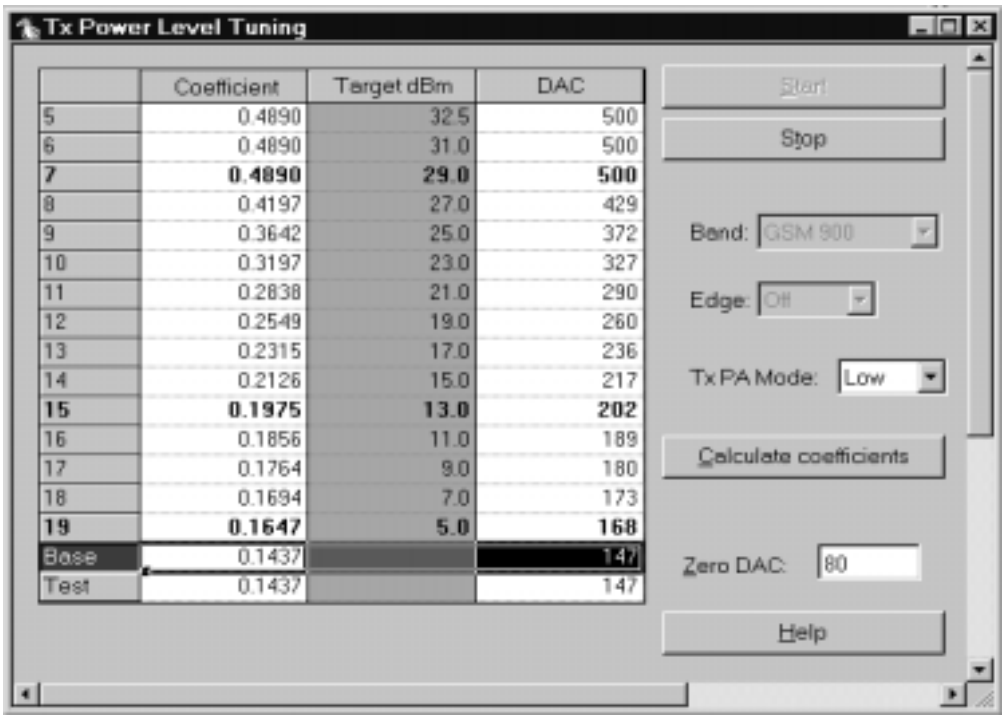


Figure 6: TX power level tuning window, TxPA low mode



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- Move with arrow keys and use +/-keys for tuning
- Tune base level power and levels 19,15 and 5 to target level and press "Calculate coefficients" or tune other power levels manually
- ChangeTxPAmode to Low and tune power levels 19, 15 and 7 (Levels 5 & 6 are not used) and press "Calculate coefficients" or tune other power levels manually.
- Stop => Save values to phone permanent memory => Yes
- On DCS1800 tune onTxPAmode High only
- "Edge" and "Zero DAC" controls not available on AMS version of Phoenix

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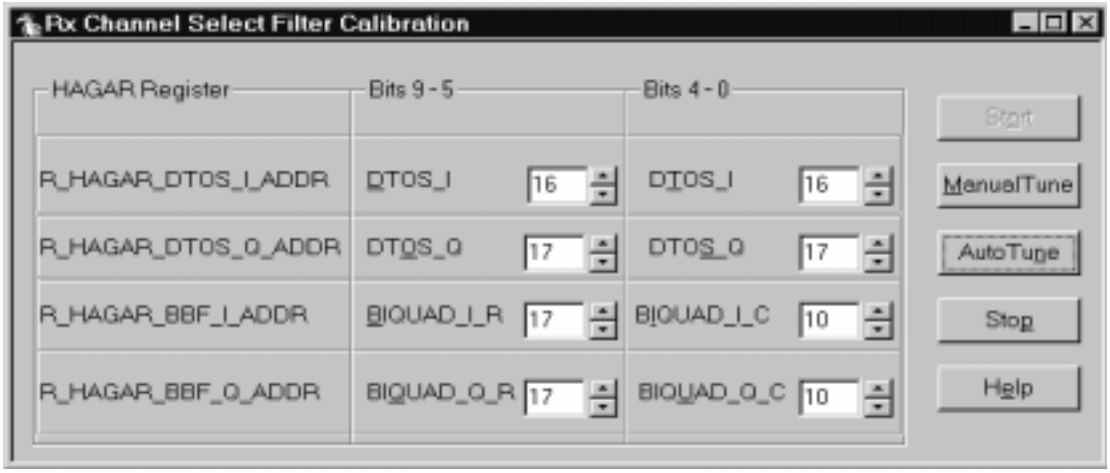
RX calibration, step1: Channel select filter

Must be done before other RX calibrations. Extra equipment not needed

- Maintenance => Tuning => Rx Channel select filter calibration

Figure 7: Rx channel select filter calibration window



- Press "AutoTune" (Manual tuning not available on AMS version of Phoenix)
- Tuning values must be 0…31
- Stop => Save values to phone => Yes
- 67kHz test signal on TXC-line (from UEM to HAGAR) during calibration
- Single calibration for both bands

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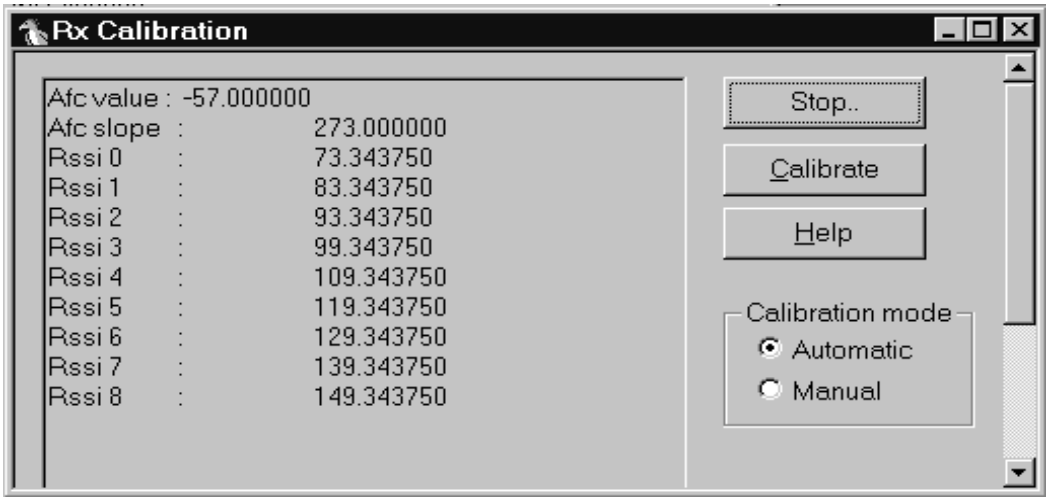
RX calibration, step2

Measuring equipment: RF generator

Maintenance => Tuning => Rx calibration

Figure 8: RX calibration window



- Caution: Check toolbar "Autom. XX dB" that XX is 60!!
- Press "Start" (Only Automatic mode available on AMS version of Phoenix)
- Select Start parameter: PM settings => OK
- Press "Calibrate" and set generator frequency and level as ordered => OK
- Must be done separately on both bands
- RSSI0…RSSI8 values should be ascending and about 70…150 (EGSM) and 65…150 (DCS1800)
- When tuning EGSM synthesizer AFC tuning is also performed

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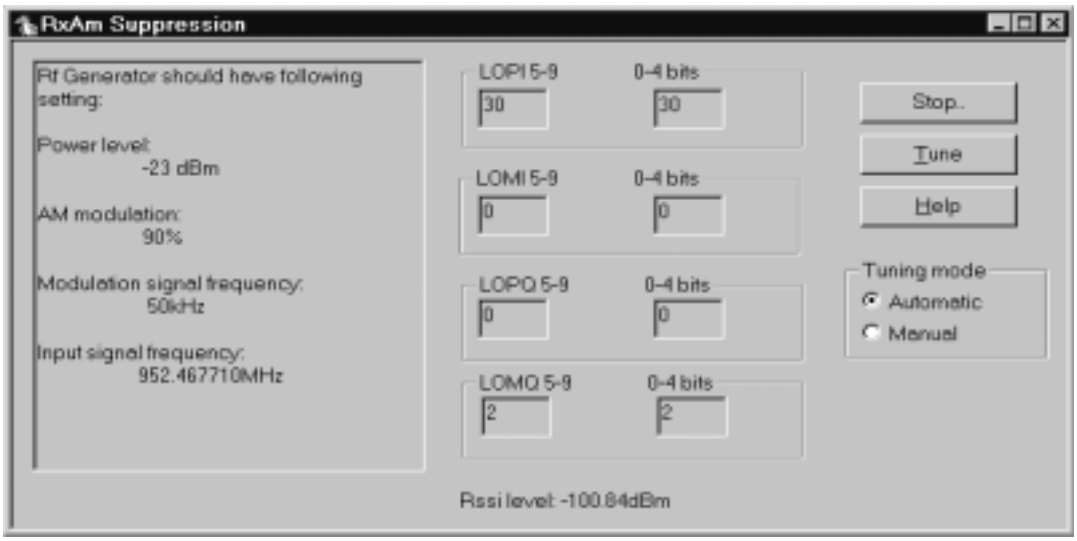
RX calibration,step3: RX AM suppression

Measuring equipment: RF generator (AM modulation)

Maintenance => Tuning => Rx Am suppression

Figure 9: RX AM Suppression window



- Start => PM settings => OK, set generator frequency and level as ordered
- Press "Tune" (Only Automatic mode available on AMS version of Phoenix)
- One "I" and "Q" line values must be 0, other values 0...31
- Caution: 50kHz modulating frequency too much for some RF generators => >15kHz can be used instead
- RSSI level should be around -107dBm

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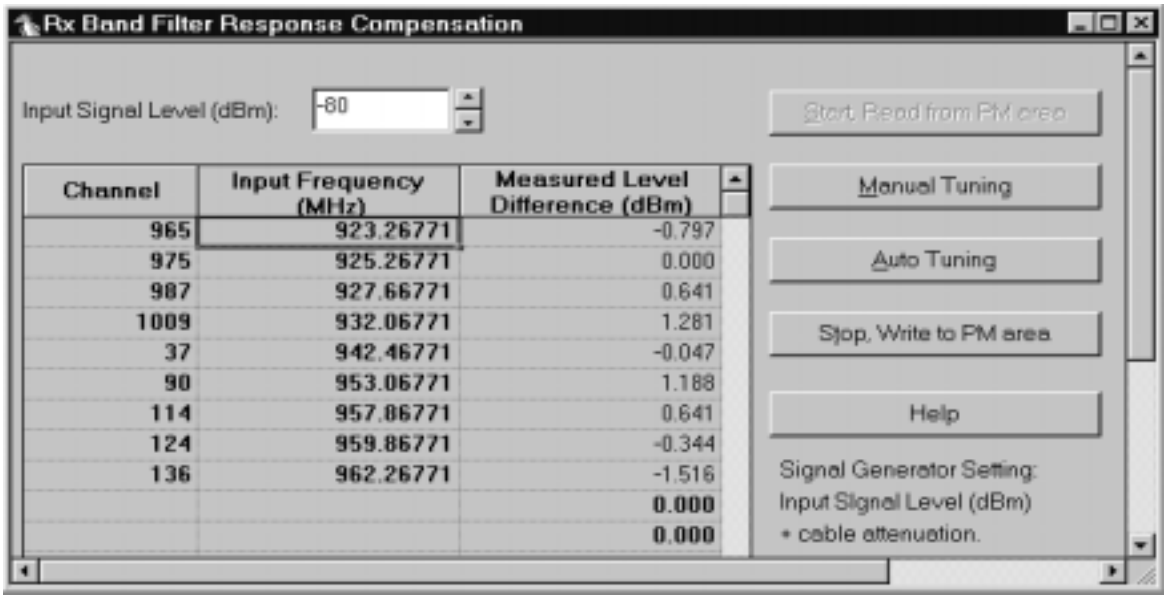
RX calibration, step4: Band filter

Measuring equipment: RF generator

Maintenance => Tuning => Rx band filter response compensation

Figure 10: Rx Band filter response compensation



- Press "Manual tuning" and set generator frequency and level as ordered
- Auto Tuning not possible with AMS version of Phoenix
- Press "Stop, write to PM area" => Save values to phone Yes/No

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Final test instructions for TME-3

NOTE! More detailed instructions can be found from product specific Technical Bulletins/Service Bulletins.

Testing of TME-3 consists of two parts:

- RF Final Test based on General SB-130 (Display test, Charge function and Keyboard test skipped)

- Testing of M2M Connector

Needed main equipment:

- SB-1 Service Box

- DTX-3 (Nokia 32 application module)

- 0046604 DTX-3 Nokia 32 Application Module SWAP package

- Standard landline telephone set

RF Final test

Figure 11: Test set-up

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Preparation for RF Final test:

- Put test SIM card to TME-3.

- Connect TME-3 to DTX-3.

- Connect RF cable between TME-3 and RF Tester.

- Connect standard landline telephone set to trunk connector of DTX-3.

Carry out RF Final test

- Start GSM 900/1800 finaltest.

- When RF tester asks to power on mobile, connect DC power supply DTX-3.

- When landline phone rings, take hook off and make audio echo test when asked.

- Wait until testsequence is ready.

After successful RF final test disconnect TME-3 from DTX-3 and RF Tester

NOTE: Audio lines pin 23+25 (MIC+/-) and 26+28 (Ear+/-) from M2M connector are already tested by audio echo test.

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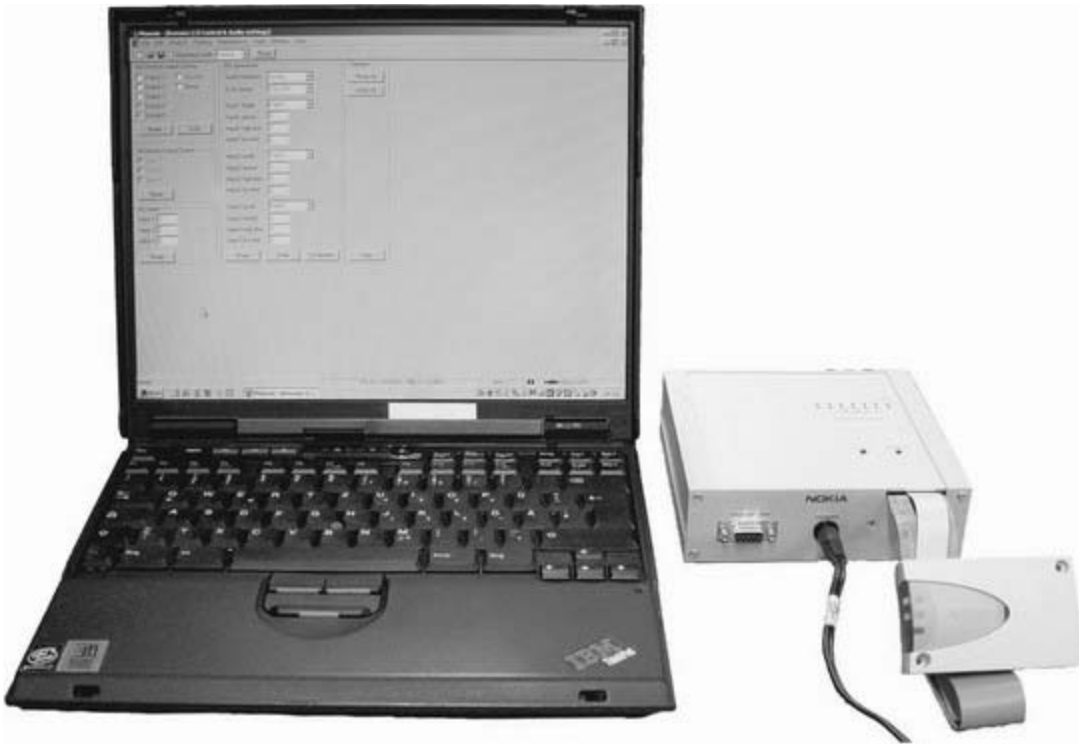
M2M Connector Final test

Figure 12: M2M connector test using SB-1 service box



For M2M connector testing please refer also to SB-014 “Quick Guide for Testing of M2M System Connector”

Testing Procedure (TME-3 in Normal Mode without test SIM card):

- Check that LED’s are alternate blinking red /green (pins 1,3,5,7)

- Open Remote I/O Control & Audio settings Testing (pins 31,33,36,37,39,40,42,43)

- Mark Up Output 1,2 and 3 in Aif Interface output Control field

- Press Write button

- Press read button in Aif Interface Input Control window and check that Input 1,2 and 3 are marked.

- Mark Up Output 4 and 5 in Aif Interface output Control field

- Press Write button and check if Output 4 and 5 leds on SB-1 are on.

- Unmark Output 1-5 and press Write button in Aif Interface output Control field

- Press read button in Aif Interface Input Control window again and check that Input 1,2 and 3 are not marked.

- Check that Output 4 and 5 leds on SB-1 are off.

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- Open M2M System Connector Testing (pins 14,15,17,18)

- Press Reset and Read button in Counters field.

- Mark up Enable counters automatic reading in 7s.

- Check that Data link Input LA and Data link Output LA value is increased every 7 seconds.

- Wait three counting cycles.

If tested TME-3 have good results in RF and M2M Connector finaltest it can return to customer.

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